In the Claims

1. (Original) An MR coil assembly comprising:

a volume coil arrangement situated to generate a polarized field about a subject to be imaged;

multiple drive ports connected to a common end of the volume coil arrangement; and

multiple drive cables connectable to a voltage source at one end and connected to the multiple drive ports at another end to apply voltages to the multiple drive ports such that the volume coil arrangement generates a substantially circular polarized field independent of subject asymmetry.

2. (Original) The assembly of claim 1 further comprising fewer drive cables than drive ports.

3. (Original) The assembly of claim 1 further comprising a balun connected to each drive port.

4. (Original) The assembly of claim 3 further comprising a splitter connected to each drive cable and a pair of baluns.

5. (Original) The assembly of claim 4 wherein each drive port is connected to receive a voltage that is 90 degrees out-of-phase from a voltage applied to a neighboring drive port.

6. (Original) The assembly of claim 1 wherein the common end of the volume coil arrangement is a superior end-ring of the volume coil arrangement.

7. (Original) The assembly of claim 1 wherein the volume coil arrangement includes sixteen coil elements arranged in a birdcage configuration.

8. (Original) The assembly of claim 2 wherein the multiple drive ports include four drive ports and the multiple drive cables include two drive cables.

9. (Original) The assembly of claim 1 wherein the volume coil arrangement is constructed such that a center thereof is not a virtual ground plane.

10. (Original) An MRI apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR data from a subject, the RF coil assembly having:

a plurality of RF coils arranged in a birdcage arrangement to transmit RF energy toward the subject at least partially positioned in a volume-of-interest; and

a number of drive ports to receive an applied voltage to drive the plurality of RF coils and maintain a substantially circular polarized field about the volume-of-interest independent of subject contact with the RF coil assembly.

11. (Original) The MRI apparatus of claim 10 wherein the RF coil assembly includes a balun electrically connected to each drive port to couple balanced and unbalanced inputs.

12. (Original) The MRI apparatus of claim 11 further comprising at least one splitter, each splitter electrically connected to apply a phase-shifted voltage input to each balun of a pair of baluns.

13. (Original) The MRI apparatus of claim 12 further comprising a pair of voltage inputs, a first input electrically connected to a first splitter and a second input electrically connected to a second splitter.

14. (Original) The MRI apparatus of claim 13 wherein the first input is 90 degrees out-of-phase from the second input.

15. (Original) The MRI apparatus of claim 11 wherein each splitter is constructed to perform a ± 90 degree phase shift of a voltage input.

16. (Original) The MRI apparatus of claim 10 wherein the birdcage arrangement includes an inferior end-ring and a superior end-ring, and wherein the number of drive ports are connected to only one of the inferior end-ring and the superior end-ring.

17. (Original) The MRI apparatus of claim 10 wherein a drive port is configured to be driven by an input that is 90 degrees out-of-phase of an input applied to a neighboring drive port.

18. (Original) The MRI apparatus of claim 10 wherein the RF coil assembly includes four drive ports and sixteen RF coil elements.

19. (Previously Presented) A method of driving coils of an MR coil assembly to reduce subject asymmetry input in a polarized RF field independent of subject asymmetry, the method comprising the steps of:

providing a pair of power inputs;

splitting each power input into a pair of driving inputs;

inputting each driving input to a balun; and

inputting an output of each balun to a respective MR coil drive port that is connected to more than one coil of an MR coil assembly for generation of an RF field about a volume-of-interest.

20. (Original) The method of claim 19 further comprising the step of splitting each input such that the driving inputs are shifted 90 degrees out-of-phase from one another.

21. (Original) The method of claim 19 further comprising the step of inputting a first driving input of a pair of driving inputs to a first balun and inputting a second driving input of the pair of driving inputs to a second balun, and wherein the first balun is electrically connected to a drive port that is not a neighbor of a drive port connected to the second balun.

22. (Original) The method of claim 19 further comprising the step of impedance matching the pair of voltage inputs before inputting the driving inputs to respective baluns.

23. (Original) The method of claim 19 wherein the RF coil assembly includes sixteen coils arranged in a birdcage coil arrangement, and wherein each MR coil assembly drive port is connected on a common end-ring.